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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,900	12/22/2000	Rao Annapragada	LAM1P157/P0718	1910

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EXAMINER	
CROWELL, ANNA M	
ART UNIT	**PAPER NUMBER**
1763	7

DATE MAILED: 10/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/746,900	ANNAPRAGADA ET AL.	
	Examiner	Art Unit	
	Michelle Crowell	1763	

-- The MAILING DATE f this communication appears on the cover sheet with the correspondence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) *15-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-5, 8-9, 13-14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenz et al. (U.S. 5,534,751) in view of Li et al. (U.S. 6,105,588).

Referring to Figure 1, column 4, line 48 – column 5, line 15, and column 6, lines 16-29, Lenz et al. discloses a plasma etching apparatus comprising a plasma chamber 12, a ring assembly 30 (plasma confinement device, plasma rings), a gas inlet (col. 5, lines 1-3), an upper electrode 14, a lower electrode 13 (chuck), and an outlet (col. 5, lines 4-5, exhaust system). The lower electrode 13 supports a workpiece 16 (substrate) to be etched. The ring assembly 30

includes a stack of spaced apart circular plasma rings 32. In one experiment, the pressure inside the chamber 12 is 50 mTorr (col. 7, lines 21-25).

Regarding claim 3, the stack is considered a matter of intended use since an article worked upon in an etching apparatus has no significance in determining patentability of apparatus claims. Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "the inclusion of material or **article worked** upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Lenz et al. fails to teach a gas source comprising a fluorine containing gas source; an ammonia containing gas source.

Referring to Figure 1 and column 4, lines 26-36, Li et al. teaches an apparatus for processing a substrate comprising a fluorine containing gas source 12 and an ammonia containing gas source 12. It is well known to one of ordinary skill in the art to provide a fluorine containing gas source and an ammonia containing gas source to an apparatus in order to perform the desired process. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the apparatus of Lenz et al. with a fluorine containing gas source and an ammonia containing gas source as taught by Li et al. in order to perform the desired process.

4. Claims 6, 7, and 10-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Lenz et al. (U.S. 5,534,751) in view of Li et al. (U.S. 6,105,588) as applied to claims 1-5, 8-9, 13-14, and 19 above, and further in view of Westendorp et al. (U.S. 5,565.036).

The teachings of Lenz et al. in view of Li et al. have been discussed above.

Lenz in view of Li et al. fails to teach the electrodes spaced apart less than 2 cm.

Referring to column 6, lines 3-7, lines 51-54, Westendorp et al. teaches that it is known for the upper electrode 12 and the lower electrode 14 to be spaced apart a distance less than one centimeter (less than 2 cm). High processing rates result from a small electrode spacing. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to space the electrodes of Lenz et al. in view of Li et al. apart as taught by Westendorp et al. When electrodes are space apart less than one centimeter, high processing rates result.

5. Claims 6, 7, and 10-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Lenz et al. (U.S. 5,534,751) in view of Li et al. (U.S. 6,105,588) as applied to claims 1-5, 8-9, 13-14, and 19 above, and further in view of Ishida et al. (Japanese Patent Publication 05-234594).

The teachings of Lenz et al. in view of Li et al. are discussed above.

Lenz et al. in view of Li et al. fails to teach the electrodes spaced apart less than 2 cm.

Referring to column 6, lines 3-7, lines 51-54, Ishida et al. teaches that it is known for the upper electrode 12 and the lower electrode 14 to be spaced apart a distance between 1-15 centimeters. Etching rate uniformity is improved based on the electrode spacing. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to space the

electrodes of Lenz et al. in view of Li et al. apart as taught by Ishida et al. Etching rate uniformity is improved based on the electrode spacing.

Response to Arguments

6. Applicant's arguments filed February 19, 2003 have been fully considered but they are not persuasive.

Applicant has argued that Lenz et al. the citing of a fluorine gas source or ammonia gas source is not a statement of intended use, but a positive recitation of physical elements.

Argument is moot in view of the new rejection Lenz et al. in view of Li et al.

Applicant has argued that it is not obvious to combine the electrodes of Lenz with the electrode spacing of Westendorp since Lenz is used for etching and Westendorp is used for deposition.

It is noted that Westendorp is used for deposition; however, similar results will occur in an etching apparatus because the etch rate will increase with an electrode spacing of less than 1 cm. The difference between an etching apparatus and a deposition apparatus is the type of gases used, and one of ordinary skill in the art understands that the etching rate will increase with the decrease in electrode spacing. Furthermore, the motivation to combine references may be found either in the references themselves or ***in the knowledge generally available to one of ordinary skill in the art.*** See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Additionally, Westendorp states that the transformation of gas molecules into the plasma is contingent upon the electrode spacing (col. 7, lines 45-49).

Applicant has argued that the Examiner failed to point out anything in Lenz et al. or Ishida et al that discloses that etching uniformity is improved based on electrode spacing and respectfully request that such a reference be specifically pointed out.

In the abstract, the purpose line states that the apparatus having an electrode spacing between 10-150mm provides improved etching rate uniformity. Additionally, the motivation to combine references may be found either in the references themselves or ***in the knowledge generally available to one of ordinary skill in the art.*** See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (703) 305-1956. The examiner can normally be reached on M-F (8:00 - 4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

AMC AMC
October 9, 2003

LUZ ALEJANDRO-MULERO
PRIMARY EXAMINER